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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR   | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|------------------------|---------------------|------------------|
| 10/733,919      | 12/11/2003  | Andrew Michael Britton | RAMAND              | 8596             |

7590 07/24/2006

DAVID GEORGE JOHNSON  
POST OFFICE BOX 286  
AITKIN, MN 56431

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| EXAMINER |
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WHITTINGTON, KENNETH

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| ART UNIT | PAPER NUMBER |
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2862

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |   |  |  |
|------------------------------|---|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/733,919      | <b>Applicant(s)</b><br>BRITTON, ANDREW MICHAEL |  |
|                              | <b>Examiner</b><br>Kenneth J. Whittington | <b>Art Unit</b><br>2862                        |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

The Amendment filed June 8, 2006 has been entered and considered.

***Claim Rejections - 35 USC § 103***

6           The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

          Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeVito et al. (US4,904,921), hereinafter DeVito, in view of Urabe et al. (US6,064,291), hereinafter Urabe. DeVito teaches a linear variable differential

12   transformer (LVDT) position transducer comprising:

          a radio frequency oscillator (See FIG. 1, item 26 and see col. 8, lines 11-24);

          an oscillator coil, the coil being electrically connected to the oscillator so as to emit a magnetic field in a region surrounding the coil (See FIG. 1, item 14);

18           a first and second input coil residing within the magnetic field, generating first and second output signals, respectively, in response to a disturbance in the magnetic field (See FIG. 1, items 16 and 18, creating signals A and B, see also claim 1);

          a signal processor measuring a ratio of the first and second signals to determine a physical location of an item

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causing the disturbance in the magnetic field (See claim 1, note it discloses a ratio of the first and second signals multiplied by a scalar to determine position of the core).

However, DeVito does not explicitly teach the use of a pair of oscillator coils, each being electrically connected in an electrically parallel relationship. Urabe discloses a transformer design using a plurality of excitation coils in a transformer which are electrically interconnected and in an electrically parallel relationship (See Urabe FIG. 2, note coil 21 is divided into three parallel coils 21a-c). It would have been obvious at the time the invention was made to incorporate the parallel coils of the transformer of Urabe into the linear variable differential transformer of DeVito. One having ordinary skill in the art would have been motivated to do so to allow for narrower wire to be used in the windings and to suppress temperature problems (See Urabe col. 4, lines 42-53).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeVito. DeVito teaches a linear variable differential transformer (LVDT) position transducer comprising:  
a radio frequency oscillator (See FIG. 1, item 26 and see col. 8, lines 11-24);

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an oscillator coil, the coil being electrically connected to the oscillator so as to emit a magnetic field in a region surrounding the coil, the coil comprising a plurality of coils interconnected in a series relationship (See FIG. 1, item 14, note full coil comprises a series of small single loop coils);

6 a first and second input coil residing within the magnetic field, generating first and second output signals, respectively, in response to a disturbance in the magnetic field (See FIG. 1, items 16 and 18, creating signals A and B, see also claim 1);

a signal processor measuring a ratio of the first and second signals to determine a physical location of an item  
12 causing the disturbance in the magnetic field (See claim 1, note it discloses a ratio of the first and second signals multiplied by a scalar to determine position of the core).

However, DeVito does not explicitly disclose the particular dimension for the oscillator coils. Nonetheless, modifying DeVito to have the relative dimensions as recited in the claims  
18 would be obvious to one having ordinary skill in the art through routine experimentation because where the where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device is not patentably

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distinct from the prior art device. See MPEP 2144.04. One having ordinary skill in the art would thus be motivated to make the oscillator have particular sizes, i.e., the dimensions recited in the claims, depending on the particular requirements of the position sensor.

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### ***Response to Arguments***

Applicant's arguments with respect to claims 8 and 9 have been considered but are moot in view of the new grounds of rejection note above.

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### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US20020089326 and US2,564,221 disclose position detectors and US4,635,019 discloses coil configurations.

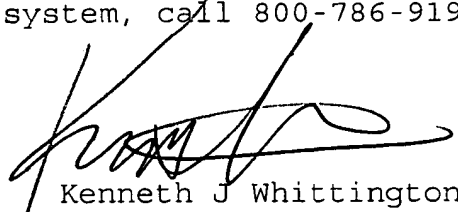
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Whittington whose telephone number is (571) 272-2264. The examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be


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reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Kenneth J Whittington  
Examiner  
Art Unit 2862

18 kjw

  
**EDWARD LEFKOWITZ**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**